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09/666,281	09/21/2000	Jin Soo Lee	III-019	8469

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EXAMINER

MAHMOUDI, HASSAN

ART UNIT

PAPER NUMBER

2175

DATE MAILED: 08/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/666,281

Applicant(s)

LEE ET AL.

Examiner

Tony Mahmoudi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 11-12, and 14-16 is/are rejected.
- 7) ☒ Claim(s) 5, 7-10, 13, and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-131) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DOV POPOVICI
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DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it includes improper language such as “disclosed” (in line 1.) See MPEP 608.01(b).

Corrections are required.

Claim Objections

2. Claim 2 is objected to because of the following informalities:

In claim 2, line 2: “and is” should be --is--.

Correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al (U.S. patent No. 5,579,471) in view of Rhoads (U.S. patent No. 6,084,227.)

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As to claim 1, Barber et al teaches a multimedia data structure (see column 6, lines 50-53) reflecting change of a user relevance feedback for determining weights (see column 8, lines 17-21, and see column 9, line 65 through column 10, line 2) of image features used for an image search (see column 3, lines 58-60), comprising:

- (a) information describing the features of a certain image (see column 5, lines 30-35);
- (d) wherein the weights of the image features are determined (see column 8, lines 15-21, where “determining the weight” is read on “image characteristic is weighed”), and the image features according to the determined weights are used for the image search (see column 17, line 64 through column 18, line 2.)

Barber et al does not teach:

- (b) recent user feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback;
- (c) whole feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback; and
- (d) the weights are determined considering both the recent user feedback information and the whole feedback information.

Rhoads teaches an imaging system (see Abstract), in which he teaches:

- (b) recent user feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback (see column 35, lines 29-39); (c) whole feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback (see column 35, lines 40-50, where “whole feedback” is read on “weighted average”); and (d) the weights are determined considering both

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the recent user feedback information and the whole feedback information (see column 35, lines 50-54, and see column 71, lines 51-64.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al to include recent user feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback; whole feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback; and, the weights are determined considering both the recent user feedback information and the whole feedback information.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al by the teachings of Rhoads because including recent user feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback; whole feedback information when the weights of the features of the certain image are learned and determined by the user relevance feedback; and, having the weights determined considering both the recent user feedback information and the whole feedback information, would allow the system to keep current and up-to-date characteristics (weights) of images based on individual users' feedback and by combining the individual feedback into whole feedback for a given image, and use the whole feedback for searching for a particular image in the image database.

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As to claim 2, Barber et al as modified teaches wherein the recent feedback information is determined for a predetermined time period or by a predetermined frequency (see Rhoads, column 33, lines 49-58.)

As to claim 3, Barber et al as modified teaches wherein the recent feedback information is a weight value learned by the recent user feedback or a similar image information (see Rhoads, column 35, lines 33-40), and the whole feedback information is represented by a weight value learned by all the feedback given till now (see Rhoads, column 35, lines 39-50.)

As to claim 6, Barber et al as modified teaches the method comprising:

representing the recent user feedback information by a similar image list (see Barber et al, column 5, lines 35-42); and

reflecting a recent user feedback pattern (see Barber et al, column 12, lines 38-44) by the similar image, list using a queue algorithm (see Barber et al, column 6, lines 37-50, where “queue algorithm” is read on “thumbnail data representation”, also see column 9, line 65 through column 10, line 2, where “queuing” is read on “the order of the images returned”).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al (U.S. patent No. 5,579,471) in view of Rhoads (U.S. patent No. 6,084,227) as applied to claims 1-3, and 6 above, and further in view of Blanchester (U.S. Patent No. 6,141,438.)

As to claim 4, Barber et al as modified does not teach the data structure further comprising recent user feedback reliability information representing how reliable the recent user feedback

information is, and whole feedback reliability information representing how reliable the whole feedback information is.

Blanchester teaches a document authentication control device (see Abstract), in which he teaches the data structure further comprising recent user feedback reliability information representing how reliable the recent user feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is (see column 1, lines 64-67, and see column 3, line 64 through column 4, line 52.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified to include the data structure further comprising recent user feedback reliability information representing how reliable the recent user feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified, by the teaching of Blanchester, because including the data structure further comprising recent user feedback reliability information representing how reliable the recent user feedback information is, and whole feedback reliability information representing how reliable the whole feedback information is, would result in more accurate image searches in an image database.

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6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al (U.S. Patent No. 5,579,471) in view of Rhoads (U.S. Patent No. 6,084,227) as applied to claims 1-3 and 6 above, and further in view of Evelyn-Veere et al (U.S. Patent No. 4,176,395.)

As to claim 11, Barber et al as modified teaches wherein the recent user feedback information is represented as a similar image list (see Barber et al, column 5, lines 35-38), and the similar image list has an image list structure composed of a similar image identification (see Barber et al, column 5, lines 38-42), a score reflecting the current feedback (see Barber et al, column 14, lines 46-55.)

Barber et al as modified does not teach a waiting duration representing a time period between the final feedback time point and the present time point.

Evelyn-Veere et al teaches an interactive irrigation control system (see Abstract), in which she teaches a waiting duration representing a time period between the final feedback time point and the present time point (see column 34, lines 41-47, and see column 35, lines 53-65.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified to include a waiting duration representing a time period between the final feedback time point and the present time point.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified, by the teaching of Evelyn-Veere et al, because having a waiting duration representing a time period between the final feedback time point and the present time point will indicate to the user how recent the feedback on a given

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image is and would further indicate whether the current user's feedback is received and/or implemented.

As to claim 12, Barber et al as modified teaches the image list managing method comprising: managing a similar image list in a manner that only images whose scores are over a predetermined threshold number are maintained in the list (see Barber et al, column 14, lines 46-64) or only images whose scores are N on upper positions of the list if a size of the list is N (see Barber et al, column 14, lines 65-67, where "ranking the image" and "best scores" are discussed.)

7. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al (U.S. patent No. 5,579,471) in view of Rhoads (U.S. patent No. 6,084,227), and further in view of Blanchester (U.S. Patent No. 6,141,438.)

As to claim 14, Barber et al teaches a method of determining weights of image features (see column 8, lines 17-21, and see column 9, line 65 through column 10, line 2) in a system for determining the weights of the features used for an image search (see column 8, lines 15-21, where "determining the weight" is read on "image characteristic is weighed) by the user relevance feedback, the method comprising the steps of:

(a) providing a multimedia data structure including information describing the features of a certain image (see column 6, lines 50-53),

(c) determining the weights of the image features (see column 8, lines 15-21, where "determining the weight" is read on "image characteristic is weighed.)

Barber et al does not teach: recent and whole feedback information; updating the feedback information by learning them in response to the user feedback.

Rhoads teaches an imaging system (see Abstract), in which he teaches: recent and whole feedback information; and updating the feedback information by learning them in response to the user feedback (see column 35, lines 29-39, and see column 35, lines 40-50, where “whole feedback” is read on “weighted average”).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al to include recent and whole feedback information; and updating the feedback information by learning them in response to the user feedback.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al by the teachings of Rhoads because including recent and whole feedback information; and updating the feedback information by learning them in response to the user feedback, would allow the system to keep current and up-to-date characteristics (weights) of images based on individual users' feedback and by combining the individual feedback into whole feedback for a given image, and use the whole feedback for searching for a particular image in the image database.

Barber et al as modified still does not teach: reliability information of the respective feedback information; and updating their reliabilities by learning them in response to the user feedback.

Blanchester teaches a document authentication control device (see Abstract), in which he teaches reliability information of the respective feedback information; and updating their

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reliabilities by learning them in response to the user feedback (see column 1, lines 64-67, and see column 3, line 64 through column 4, line 52.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified to include reliability information of the respective feedback information; and updating their reliabilities by learning them in response to the user feedback.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Barber et al as modified, by the teaching of Blanchester, because including reliability information of the respective feedback information; and updating their reliabilities by learning them in response to the user feedback, would result in more accurate image searches in an image database.

As to claim 15, Barber et al as modified teaches wherein the recent feedback information is represented by a weight value learned by the recent user feedback or a similar image information (see Rhoads, column 35, lines 33-40), and the whole feedback information is represented by a weight value learned by all the feedback given till now (see Rhoads, column 35, lines 39-50.)

As to claim 16, Barber et al as modified teaches wherein the reliability of the recent user feedback information is determined. in proportion to a consistency of a recently used pattern or feedback (see Blanchester, column 4, lines 52.)

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Allowable Subject Matter

8. Claims 5 and 7-10, 13, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Barber et al (U.S. Patent No. 5,579,471), Rhoads (U.S. Patent No. 6,084,227), Blanchester (U.S. Patent No. 6,141,438), and Evelyn-Veere et al (U.S. Patent No. 4,176,395) do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claims):

wherein the recent user feedback reliability information is expressed by $1 - \frac{\left[\sum_{i=0}^{i=m} (N - n_i) \right]}{N}$

where, N is the number of feedback, m is the number of images in the similar image list, and n_i is the number of feedback given to the i-th image, as claimed in claim 5. TM
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The prior art of record, Barber et al (U.S. Patent No. 5,579,471), Rhoads (U.S. Patent No. 6,084,227), Blanchester (U.S. Patent No. 6,141,438), and Evelyn-Veere et al (U.S. Patent No. 4,176,395) do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claims):

wherein the queue algorithm comprises the steps of:

(a) checking whether a similar multimedia object exists in a current queue when the corresponding object is fed back ;

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(b) if it is checked that the corresponding object does not exist in the current queue, inputting the corresponding object to an uppermost space of a queue entrance, setting the number of feedback of the corresponding object to "1", and shifting objects existing in the queue to lower positions by one space;

(c) if it is checked that the corresponding object exists in the current queue, increasing the number of feedback of the corresponding object, and shifting the objects existing in the queue to upper positions by "N"; and

(d) if any object is shifted to the lower position over a size of the queue at the respective steps, deleting the corresponding object from the queue, as claimed in claim 7.

Claims 8-10 are objected to as being dependent upon the objected to dependent claim 7.

The prior art of record, Barber et al (U.S. Patent No. 5,579,471), Rhoads (U.S. Patent No. 6,084,227), Blanchester (U.S. Patent No. 6,141,438), and Evelyn-Veere et al (U.S. Patent No. 4,176,395) do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claims):

A feedback reflecting score updating method for the multimedia data structure reflecting the recent feedback, comprising updating image scores in a manner that:

(a) with respect to images fed back from similar images, a following calculation is performed; and

$$\text{Score (new)} = \text{Score (current)} \times \text{fW (Waiting Duration)} + 1$$

(b) with respect to other images not fed back, a following calculation is performed;

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$$\text{Score}(\text{new}) = \text{Score}(\text{current}) \times fW(\text{Waiting Duration})$$

(c) wherein $fW(\text{Waiting Duration})$ is a function having the characteristic that it returns smaller value as the waiting duration becomes larger, as claimed in claim 13.

The prior art of record, Barber et al (U.S. Patent No. 5,579,471), Rhoads (U.S. Patent No. 6,084,227), Blanchester (U.S. Patent No. 6,141,438), and Evelyn-Veere et al (U.S. Patent No. 4,176,395) do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claims):

wherein the reliability of the whole feedback information is determined in proportion to the number of feedback concerned in learning, as claimed in claim 17.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to methods and systems of searching images in an image database, providing feedback on the image characteristics, and measuring feedback reliability in general:

U.S. Patent No. 5,748,231 to Park et al.

U.S. Patent No. 6,292,575 to Bortolussi et al.

U.S. Patent No. 5,281,995 to Terashita et al.

U.S. Patent No. 5,652,899 to Mays et al.


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11. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici, can be reached at (703) 305-3830.

tm

August 08, 2002


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